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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,009	06/20/2003	Steven J. Holmes	FIS920030151US1	1008
29371	7590	12/22/2003	EXAMINER	
CANTOR COLBURN LLP			QUACH, TUAN N	
55 GRIFFIN ROAD SOUTH			ART UNIT	PAPER NUMBER
BLOOMFIELD, CT 06002			2814	

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,009

Applicant(s)

HOLMES ET AL.

Examiner

Tuan Quach

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 15-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 8-14 is/are rejected.
- 7) ☒ Claim(s) 2-7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-14, drawn to a process of making a semiconductor device, classified in class 438, subclass 514.
- II. Claims 15 and 16, drawn to a semiconductor device, classified in class 257, subclass 387.

The inventions are distinct, each from the other because:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process wherein separate masking and patterning are employed. Note that for product by process claims, it is the patentability of the product which must be determined.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Sean F. Sullivan on December 9, 2003 a provisional election was made without traverse to prosecute the invention of group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this

Office action. Claims 15 and 16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claims 8-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8 line 13, "forming a first implant mask implant mask layer" is erroneous as "first implant mask layer" was already recited at line 3 and as "implant mask" is written twice. A change to "forming a second implant mask layer" would be acceptable.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ahgren et al. (US 5,266,505).

Ahgren teaches forming first implant mask 24 on substrate comprising semiconductor substrate 12 and epitaxial layer, patterning portion of layer 24 photolithographically (thus corresponding to or encompassing the use of a patterned photoresist to pattern layer 24) to form opening therein, implant through the opening doped region 28, forming second implant mask 34 by depositing layer 34 in the exposed portion and removing remaining portion of layer 24, implant to form doped regions 16. See Figs. 1A-1H, column 2 line 32 to column 3 line 68. The alternative embodiment in Fig. 2 and described at column 4 line 20 –65 also anticipates the claimed invention where the first mask corresponds to layer 23, the second mask corresponds to structure 44. The use of patterned photoresist to pattern the first mask layer would be met as

Art Unit: 2814

delineated above or alternatively, it would have been conventional and obvious to one skilled in the art that such photolithography to pattern layers such as layer 24 or 23 using patterned photoresist for such patterning.

Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kraft et al. (US 6,562,547).

Kraft teaches forming first implant mask pattern 3 for exposing region 5 of substrate 1 and second implant mask 16 on previously non-exposed portion followed by removing of first implant mask 3; see Figs. 1-6, column 3 line 46 to column 5 line 12; that such masks encompass implant would be apparent, including as taught in subsequent application Figs 7-11, column 4 lines 12-53, by forming first implant mask 11 on semiconductor substrate 11, implant to form doped region 10, forming the second implant mask layer 15 on nonexposed portion to form doped region 9 including by implantation. The use of photoresist to pattern the first mask is met e.g., column 3 line 47 wherein photoresist correspond to the masking employed to form the first mask or alternatively, the use of conventional photoresist pattern to pattern the first mask layer is well within the purview of one skilled in the art and would have been obvious.

Claims 2-7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach the limitation of claim 2 in the context of base claim 1.

Appropriate correction of claim 8 and incorporating corresponding subject matter in claim 8 (similar to that of claim 2) would render the claim and dependent claims therefrom allowable.

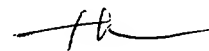
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fredericks et al., Peek, Wheeler et al., Wu et al., Zampini et al., Lin, and Adams et al. are made of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number is (703)308-1096 (after 1/12/04 (571)272-1717). The examiner can normally be reached on M - F from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Wael Fahmy can be reached on (703) 308-4918 (after 1/12/04 (571)272-1705). The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318 (Before Final) and (703) 872-9319 (After Final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956 (after 1/15/04 (571)272-1562).

A handwritten signature, possibly reading 'ft', is located at the bottom right of the page.